

### **REMARKS/ARGUMENTS**

Claims 73-86 are pending in this Application. All of the pending claims were rejected in the last Office Action. Claims 73 and 80 have been amended. Support for the amendments can be found throughout the specification.

#### **I. Cancellation of Claims 1-72**

Applicants confirm the cancellation of claims 1-72.

#### **II. Rejections based on the first paragraph of 35 U.S.C. § 112**

Claims 73-84 were rejected under the first paragraph of 35 U.S.C. § 112 as allegedly not being enabled for “any and all types of dyes contacted with cells in microchannels.” Office Action pg. 2. Applicants assert that the amendments to claim 73 have eliminated the basis for this rejection.

The strongest basis for the rejections of claims 73-84 under the first paragraph of § 112 was that claim 73, the broadest pending claim, encompassed embodiments that were not enabled by the specification. Although the Examiner did not explicitly state why the specification was not enabling, it appears that the Examiner may have felt that the reasons given for the rejection under the second paragraph of § 112 also underlied the rejection under the first paragraph of § 112. The reasons given for the rejection under the second paragraph of § 112 were that the pending claims did not specify (1) the purpose of the method, (2) the appropriate reaction time, (3) suitable reaction conditions, and (4) a step correlating a detectable signal with a cellular response. Amended claim 73 now states a purpose for the method: to determine the permeability of a cell membrane. The specification lists cells as one source of the membranes of interest in embodiments of the invention. See Application pg. 8 lines 15-17. The amendments to claim 73 specify that the appropriate reaction time is the amount of time required for the signal emanating from the dye to reach an equilibrium value. That amount of time could easily be determined by one skilled in the art. The suitable reaction conditions will vary depending on what dye is used. The specification provides several examples of commercially available cationic membrane permeable dyes (see Application pg. 13 line 21 – pg. 16 line 22), anionic membrane permeable dyes (see Application pg. 16 line 23 – pg. 17 line 15) and neutral

membrane permeable dyes (see Application pg. 18 line 29 – pg. 19 line 14). As the specification explains, the permeability of a cell membrane to cationic and anionic membrane permeable dyes is influenced by factors such as transmembrane potential, temperature, and pH. See e.g. Application pg. 13 lines 22-24; pg. 16 lines 24-24-28. In contrast, the cell permeability measured by neutral membrane permeable dyes is influenced by all of those factors except for transmembrane potential. See Application pg. 18 lines 31-36. Thus different types of permeabilities can be measured by different embodiments of the invention. Applicants assert that one skilled in the art would recognize how to employ the commercially available dyes listed in the specification to a particular assay. Indeed, the flexibility provided by performing the claimed assay in a continuous flow mode within a microfluidic device would make determination of the appropriate reaction conditions even easier than it would be if the assay were carried out in a conventional batch process. Finally, a step in which the detectable signal is correlated with the permeability of the cell membrane has been added. In summary, Applicants assert that amended claim 73, and all of the claims dependent from claim 73, are enabled by the specification.

Applicants would like to point out that claim 80 was amended to make its language consistent with the language used in amended claim 73.

### III. Rejections based on the second paragraph of 35 U.S.C. § 112

Claims 73-84 were rejected under the second paragraph of 35 U.S.C. § 112 as allegedly failing to point out and distinctly claim the subject matter that Applicants consider to be their invention. Office Action pg. 2. As explained above, Applicants assert that the amendments to claim 73 have addressed all of the reasons the Examiner gave for this rejection. Accordingly, Applicants assert that amended claim 73, and all of the claims dependent from claim 73, point out and distinctly claim embodiments of the Applicants' invention.

### IV. Double Patenting

Claims 73-84 were rejected under the judicially created doctrine of obviousness type double patenting as being unpatentable over claims 1-35 of US Patent No. 6,537,771.

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Farinas, et al.

Reply to Office Action of November 16, 2004

Although Applicants are not sure whether this double patenting rejection will apply after the amendments to claim 73, Applicants are submitting a terminal disclaimer in which they disclaim the term of any patent resulting from this Application that would extend beyond the term of US Patent No. 6,537,771.

**Conclusion**

For the foregoing reasons, Applicant believes all the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned attorney.

Respectfully submitted,



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Signed: \_\_\_\_\_

